XCELR8R II

PERSONAL RELAXER

OWNER'S MANUAL

CAUTION: Persons subject to any form of seizures or epilepsy, using a pacemaker, or suffering from cardiac arrhythmias or other heart disorders, should not use the PR-2X system without medical supervision.

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Disclaimer

While we can report on research and anecdotal reports on the effects and benefits of using neurotechnology, we also must caution you to consider all such information as unproven. Please assume that all the products that we offer have only experimental status.

If you have a medical condition, please consult with an authorized healthcare provider before using our systems. Do not use our products as substitutes for necessary treatment. We can make no overt or implied claims for cure, treatment or mitigation of any physical or psychological condition; please do not infer any.

Those people who have any type of seizure disorder (epilepsy, etc.) must exercise extreme caution when using any form of pulsed frequencies. Certain frequencies can trigger a seizure in those with pre-existing conditions. Pregnant women and people with heart pacers should also consult with their doctor before using our systems.

You must exercise caution if you use this equipment while under the influence of medication or drugs.

Discontinue use of our systems if you notice negative effects.

We will take back any equipment for any reason during the first 30 days of use. We want you to have the best experience possible. Many thousands of people throughout the world have used mind machines with overwhelmingly beneficial results. We invite you to join in.

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INTRODUCTION

Thank you for selecting the PR-2X Personal Relaxer. The PR-2X system is the most sophisticated audio\visual mind stimulation device available today, yet it is straightforward, logical, and easy to learn. This manual will guide you through the operation of your PR-2X system, from running built-in programs to generating your own customized programs.

There are several ways to start, depending on your personal style:

QUICK START

•To experience the PR-2X stimulation options quickly, see **FOR A QUICK START,** page 1.

BACKGROUND

•For background information on audio-visual mind stimulation techniques, see **A LITTLE SCIENCE AND HISTORY,** page 2.

DETAILED INSTRUCTIONS

•For a thorough explanation of your PR-2X system, see **BASIC OPERATING INSTRUCTIONS ,** page 6, and **OPERATION OF ALL STIMULATION FUNCTIONS,** page 11.

CUSTOMIZING YOUR SYSTEM

•Once familiar with the basics, you may want to do some customizing - see **ADVANCED FEATURES,** page 18.

Your PR-2X system offers a wide variety of choices, and can be enjoyed at many different levels. Go just as far as you wish — the basic mind stimulation features are all available at the **QUICK START** level.

Enjoy...

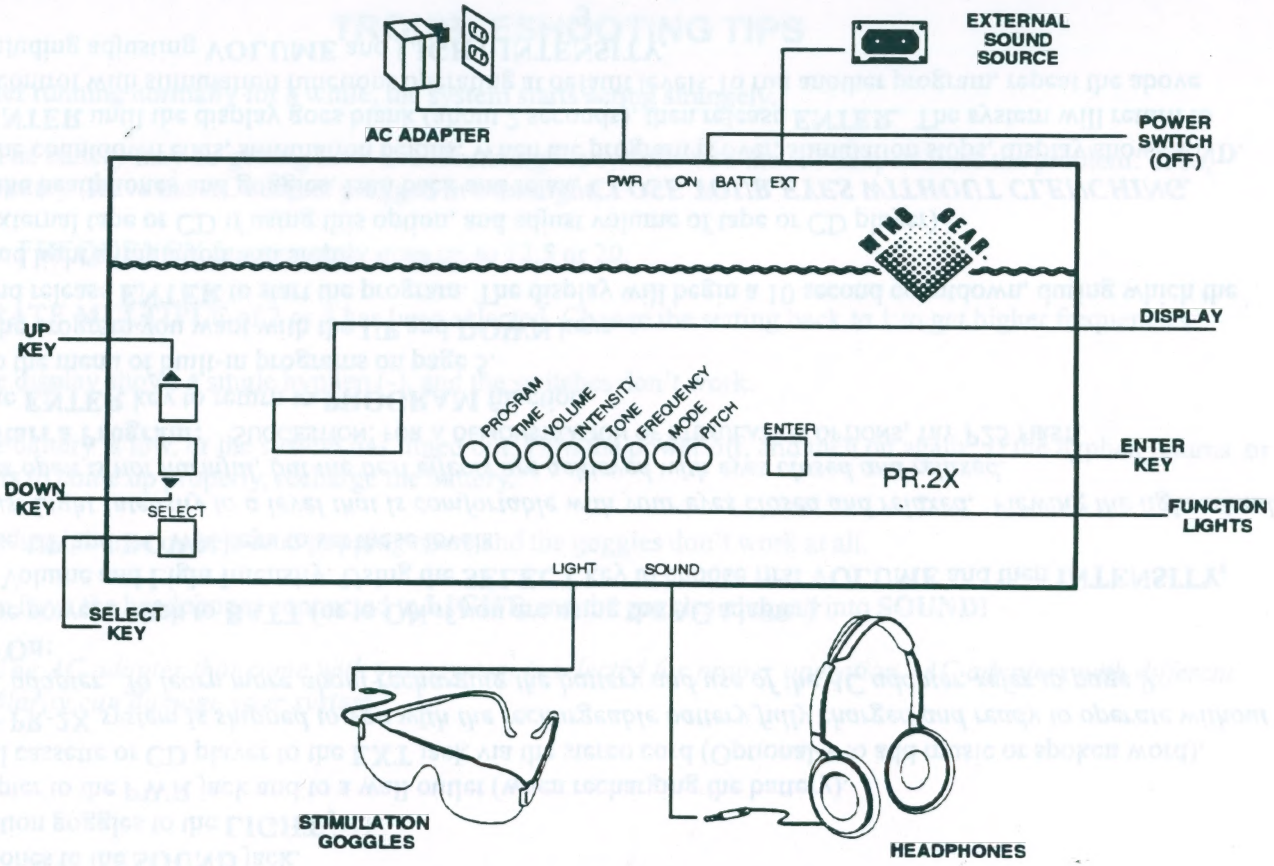


Figure 1 PR -2X Features

FOR A QUICK START

Make connections:

- •Headphones to the **SOUND** jack.
- •Stimulation goggles to the **LIGHT** jack.
- •AC adapter to the **PWR** jack and to a wall outlet (when recharging the battery).
- •External cassette or CD player to the **EXT** jack via the stereo cord (Optional—to add music or spoken word).

NOTE: *Your* PR-2X *system is shipped to you with the rechargeable battery fully charged and ready to operate without using the AC adapter. To learn more about recharging the battery and use of the AC adapter, refer to page 9.*

Turn Power On:

- •Slide the power switch to **BATT** (or to **ON** if you are using the AC adapter).
- •Adjust Volume and Light Intensity: Using the **SELECT** key to choose first **VOLUME** and then **INTENSITY,** adjust the **UP** and **DOWN** keys to set these levels.

NOTE: *Adjust Light Intensity to a level that is comfortable with your eyes closed and relaxed. Viewing the light stimulation with eyes open is not harmful, but the best effects are achieved with eyes closed and relaxed.*

Select and Start a Program: SUGGESTION: FOR A DEMONSTRATION OF STIMULATION OPTIONS, TRY P25 FIRST.

- •Press the **ENTER** key to return to **PROGRAM** function.
- •Refer to the menu of built-in programs on page 5.
- •Select the program you want with the **UP** and **DOWN** keys.
- •Press and release **ENTER** to start the program. The display will begin a 10 second countdown, during which the sound and light stimulation will stop.
- •(Start external tape or CD if using this option, and adjust volume of tape or CD player).
- •Put on the headphones and goggles, lean back and relax, ***CLOSE YOUR EYES WITHOUT CLENCHING.***
- •When the countdown ends, stimulation begins. When the program is over, stimulation stops, display shows **END.**
- •Press **ENTER** until the display goes blank (about 2 seconds), then release **ENTER.** The system will return to manual control with stimulation functions operating at default levels. To run another program, repeat the above steps including adjusting **VOLUME** and **LIGHT INTENSITY.**

A LITTLE SCIENCE AND HISTORY

The brain contains some 100 billion neurons which operate by generating and passing electrical signals. The summation of all this electrical activity results in signals that can be detected and recorded outside the brain. In analogy to recording the activity of the heart in an electrocardiogram (EKG), the recording of the brain's activity is called an electroencephalogram (EEG). The EEG pattern is popularly referred to as "brain waves". Brain waves appear as irregular, somewhat repetitive waveforms, with a dominant frequency measured in cycles per second, or Hertz (Hz). Different brain wave patterns have been found to be associated with different states of awareness. Several main patterns have been recognized as:

Super-Beta Waves	30-40 Hz	Very Alert State
Beta Waves	15-30 Hz	Alert State
Alpha Waves	7-14 Hz	Relaxed Wakefulness
Theta Waves	4-7 Hz	Reverie, Imagery
Delta Waves	0.5-4 Hz	Deep Sleep [1]

It has been demonstrated that pulsating light and sound stimulation can produce a "frequency following", or "entrainment" effect in the brain [2]. The term "entrainment" refers to the tendency of the brain waves to synchronize with the external stimulation. The discovery of light and sound entrainment, and the development of small, inexpensive computers has led to the development of devices called "Light and Sound" (L/S) machines. These machines generate rhythmic stimulation in the brain wave frequency range. The resulting entrainment of the electrical activity of the brain leads to different mental states. The novel stimuli of light and sound may, for example, either alert or sedate the brain depending on the frequency of the stimuli [5].

A popularized exposition of mind stimulation technology is presented in the books, *Megabrain*, and *Megabrain Power* [3&4], and both are available from Mind Gear™. A few of the many benefits attributed to these devices include:

•Relaxation, Enhanced learning ability, Increased energy

However, these devices are largely experimental and are not approved by any government agency for any purpose, and Mind Gear™ makes no medical claims whatsoever. Nonetheless, many people have found them to be beneficial and by purchasing your PR-2X system, you have joined those leading the way to self-exploration.

Personal growth and self-improvement are some of the more important benefits that L/S stimulation systems are used for, and many people use self-improvement audio tapes with their light and sound machines. Most of these tapes incorporate relaxation techniques and utilize soothing sounds and music. This is because it has been well documented that a relaxed mental state (the Alpha and Theta states of consciousness) are the best states of mind in which to assimilate information or suggestions. Consequently, many users combine the benefits of L/S machines with audio tapes to enhance and accelerate the effectiveness of L/S technology. However, since the PR-2X system generates its own sound, it may be used quite effectively without an external audio source to enhance creativity, for personal meditation, and to increase memory and learning.

References:

1. Shepard, G. (1988) Neurobiology. New York, Oxford University Press.
2. Walter, W.G. (1954) The electrical activity of the brain. Scientific American, June.
3. Hutchison, M. (1986) Megabrain. New York, Random House, Inc.
4. Hutchison, M. (1994) Megabrain Power, Hyperion, New York
5. Kenyon, T. (1994) Brain States. US Publishing, Naples, Florida.

GETTING THE MOST FROM YOUR PR SYSTEM

1) Use it in conjunction with any self-improvement tape or favorite piece of music.
2) Use the system for 30-60 minutes every day for the first 30 days.
3) Set aside a specific time and place to use the system every day.
4) Wear comfortable clothing, avoid tight or restrictive garments.
5) You may become chilled during deep relaxation — keep a blanket nearby.
6) Have a goal in mind; state it verbally — a problem to solve, an emotion to drain off.
7) Draw a mental picture of the results you want to attain - - keep focused on this goal.
8) Take several deep breaths prior to beginning a session.
9) After a session, take a minute to listen to the whispers, note any answers that appear.
10) As you try different programs and stimulation options, monitor your energy level, sleep patterns and reactions to stress. Individual results vary. Find out what works best for you.

BUILT-IN PROGRAM SUMMARY

NOTE: There is no "best" program or optimum way to operate the PR system. The effects of various programs and stimulation options is an intrinsically personal experience. Experiment and find out what works best for you.

Prog	Min	Description	Start Freq	Target Freq	Notes
P01	10	Quick Alpha Relaxer	30Hz	11Hz	Relaxation
P02	15	Slow Ramp Alpha	15Hz	8Hz	Relaxation
P03	10	Magic 11	18Hz	11Hz	Relaxation
P04	20	Schumann's Alpha	19Hz	11, 7.83Hz	Relaxation
P05	30	Schumann's Resonance	25Hz	7.83Hz	Relaxation, Mode Changes
P06	30	High Stress Alpha	25Hz	7.83, 5Hz	For high stress
P07	30	Low Stress Alpha	15Hz	10, 7Hz	For low stress
P08	10	Quick Fix	11Hz	7Hz	All in high Alpha
P09	15	Alpha Break	11Hz	7Hz	Lower Alpha
P10	30	Meditation Medicine	20Hz	7, 5, 3Hz	Theta meditation
P11	15	Quick Theta	15Hz	7.83, 5Hz	Meditation, dreaming
P12	15	Accelerated Learning	25Hz	6, 10Hz	Absorbing information
P13	20	9 O'Clock High	20Hz	9 Hz	Relaxation, energy
P14	20	Multi-Theta	18Hz	7.83, 4Hz	Different Theta frequencies
P15	30	Deep Theta	11Hz	5, 3Hz	Low Theta Range
P16	30	Relaxation, Learning	15Hz	5, 3Hz	Meditation, learning
P17	30	Ultimate Theta/Delta	15Hz	5, 3, 2Hz	Close to sleep
P18	60	Insomniacs Dream	11Hz	1 Hz	Help in falling asleep
P19	50	Mind Expander	10Hz	7.83, 6, 3, 1Hz	Theta frequencies near sleep
P20	25	Mental Gymnastics	25Hz	Many	Mental Exercise, enjoyment
P21	10	Sharpening The Mind	25Hz	Many	Mental Exercise, variety
P22	20	Fire of the Mind	30Hz	Many	High energy, good visuals
P23	60	Relaxed Creativity	18Hz	5Hz	Deep relaxation
P24	20	Basic Brain Tune-up	15Hz	11, 7.83, 5Hz	Mental exercise
P25	5	Demo	8Hz	5Hz	Demonstrates stimulation features

P26	23	The Balancer	35Hz	1-40Hz	Creativity
P27	40	Delta Force	18 Hz	4,1Hz	Lucid dreaming
P28	20	Morning Glory	10Hz	10,18Hz	Waking-up
P29	30	Magic 14	14Hz	14Hz	A.D.D.* Protocol
P30	30	Mind Massager	7.83Hz	7 thru 15Hz	Mental tune- up
P31	30	Alpha-Theta Train	12Hz	5 thru 12Hz	Creativity/ Learning
P32	68	Power Nap	15Hz	3 thru 6Hz	Sleep/ Learning
P33	35	Carnival Ride	2Hz	Many	Energized creativity
P34	30	Creative Monster	16Hz	8 thru 32	Energized
P35	30	Alpha Ramp	20Hz	11,10,9,7.83Hz	Relaxation
P36	30	Alpha Wave	20Hz	11,10,9,7.83Hz	Relaxation
P37	15	Coffee Break	18Hz	8,11Hz	Relaxation
P38	20	Problem Solver	7.83Hz	4,12,7.83Hz	Creativity
P39	30	Multi-Theta	30Hz	6,5,4,3Hz	Learning
P40	30	Theta Wave	20Hz	5,3Hz	Meditation
P41	15	Tune-up	7.83Hz	18,4,7.83Hz	Mental Tune- up
P42	30	Deep Relaxation	12Hz	7,3,4,8Hz	Relaxation
P43	30	Energized Learning	12Hz	8,5,7,10Hz	Learning
P44	30	Meditation Machine	24Hz	11,9,7,5,3,1Hz	Meditation
P45	30	Dreamy Delight	26Hz	12,10,8,6,4,2,1Hz	Sleep
P46	30	High Energy I	10Hz	40,36,32,30Hz	Creativity
P47	36	High Energy II	16Hz	10,36,34,32Hz	Creativity
P48	15	Quick Break	12Hz	8,5,8,10	Rejuvenation
P49	30	Relaxed Creativity	12Hz	8,5,3,1,3,5Hz	Problem solving
P50	20	Quick Learning	7.83Hz	10,7,4,7Hz	Learning
AUTOPILOT PROGRAMS					*A.D.D= Attention Deficit Disorder
APS	30	Auto Super Beta	30 to 40Hz		High energy
APb	30	Auto Beta	15 to 30Hz		High energy
APA	30	Auto Alpha	7 to 14Hz		Alert, aware
APH	30	Auto Theta	4 to 7 Hz		Meditative
APd	30	Auto Delta	1 to 4 Hz		Sleep

BASIC OPERATING INSTRUCTIONS

*The more complex features of your PR system will be addressed in **Operation of All Stimulation Functions**, and **Advanced Features**, on pages **11** and **18** respectively.*

•CONTROLS AND DISPLAYS (Refer to the connections shown in Fig. 1 on page 2.)

- •Headphones connect to the **SOUND** jack.
- •Stimulation goggles connect to the **LIGHT** jack.
- •AC adapter connects to the **PWR** jack and to a wall outlet (when conserving or recharging the battery).
- •External cassette or CD player connects to the **EXT** jack via the stereo cord (this connection is optional).

The sliding power (**PWR**) switch has three positions:

- •**ON** (left) for running system with the AC adapter. This is also one way of recharging the internal battery. (about 8 hours with system running programs)
- •**OFF** (center) This is the recommended way to recharge internal battery; PWR is OFF, AC adapter plugged in. (about 5 hours with system off)
- •**BATT** (right) for running system on internal battery.

There are four keys on the control panel of the system:

- •**SELECT,** selects a function and illuminates the corresponding function light.
- •**^ UP** and v **DOWN** (labeled with arrows) change the value of selected functions.
- •**ENTER** has a variety of control functions (as described in appropriate sections).

The eight **function lights** display which function is selected.

The three digit **display** shows the current value or mode of the selected function.

•RUNNING PROGRAMS OR USING MANUAL MODE

When the system is first turned on, it is in **manual** mode. Although the **PROGRAM** function is automatically selected and displayed as **P01** (unless you have changed the Personal Preferen ce Program), and the **program function light** is also illuminated, this does not mean that you must select or start a program.

If desired, you may adjust all (or none) of the stimulation options to your liking, and then continue to run the system without starting a program. This is called running the system in **"manual"** mode.

Most built-in programs control only the **FREQUENCY** and **PHASE** of stimulation. Any function not controlled by the program can be set or changed prior to starting a program, or 30 seconds after a built-in program has begun.

•ADJUSTING VOLUME AND LIGHT INTENSITY

NOTE: For best results, Light Intensity should be adjusted with your eyes closed.

The sound **VOLUME** and light **INTENSITY** may be adjusted to your personal preference using the **SELECT, UP** and **DOWN** keys. You can make these adjustments at any time while in manual mode, or at any time after the first 30 seconds of a built-in or custom program. You can also record these levels in your **PERSONAL PREFERENCE PROGRAM (page X)** so that you won't have to reset them each time you turn the system on.

To adjust **VOLUME** or **INTENSITY** during a program, simply wait at least 30 seconds after the program starts, then adjust the levels using the **SELECT, UP** and **DOWN** keys.

•PAUSING A PROGRAM

You can "stop the clock" and pause the execution of a program at any time by pressing and releasing **ENTER.** The stimulation will continue in whatever state it was in without changing. The right side of the display will indicate a decimal point when **pause** is activated. When you are ready to continue the program, press and release **ENTER** again, and the program will continue (the decimal point disappears).

•STOPPING A PROGRAM

You can also stop a program at any time by pressing and holding **ENTER** until the display clears (about 2 seconds). Then release **ENTER,** and the system will return to manual mode.

•RECHARGING, CARE and MAINTENANCE of the BATTERY

As previously mentioned, your system has an internal battery that can be recharged by using the AC adapter. Whenever the AC adapter is connected, the battery is recharging. Recharging takes about 8 hours if the system is running, and approximately 5 hours with the system turned off. You can recharge it overnight, but **do not** leave the AC adapter connected for more than 8 hours.

Suggestion: To prolong battery life, recharge it before it is completely run down. Depending on program selection and volume \ intensity levels, the battery charge should last about 5 hours.

Normally, you will not lose internal memory of your personal preference settings or custom programs, **although this can happen if the battery is totally discharged.** You will know when the battery needs recharging as the stimulation features and the display lights will become erratic. (see **TROUBLE SHOOTING TIPS,** page 23.)

SYSTEM TIMEOUTS

The PR-2X system automatically takes certain actions based on time:
•After pressing **ENTER** to run a program, the system displays a 10 second count-down (all stimulation features stop). Once the program begins, the system then displays the frequency variations during the program.

•If you press the **SELECT** key during a program (such as to change VOLUME, INTENSITY, etc.), **FREQUENCY** will be reselected and displayed after 10 seconds of no further action. If **TIME** mode is selected during a program (to display how much time remains in that program), **FREQUENCY** will not be automatically reselected.

•After approximately 2 hours of with no actions, the system stops operation and displays a single hyphen "-". If this happens, move the power switch to **off**. This enhances battery life. *After 30 minutes of no action while running the system in **manual mode**, the stimulation functions will stop.* Set the power switch to OFF and back ON to reset.

OPERATION OF ALL STIMULATION FUNCTIONS

It is not necessary to adjust any of the stimulation features to run built-in or custom programs, and **FREQUENCY** and **PHASE** are adjusted **ONLY** while using manual mode, or when designing custom programs. For initial ease of operation, you may want to skip the **FREQUENCY** and **MODE** functions (the **SELECT** switch cycles through them), and concentrate on VOLUME, INTENSITY, TONE, and PITCH for now.

NOTE: As with VOLUME and INTENSITY, TONE and PITCH can also be adjusted prior to, or anytime during built-in, or custom programs. If you have started a program, wait at least 30 seconds after it begins to make these adjustments.

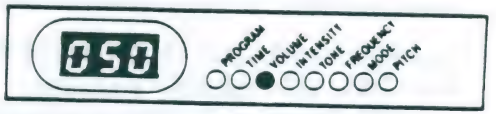
The system will allow you to change **FREQUENCY** and **PHASE** (PHASE is 1 of 3 selections in the MODE function) prior to running a program. **However,** these changes will be over-ridden and controlled by the selected built-in, or custom program once it begins. *Adjust **FREQUENCY** or **PHASE** for manual mode, or when entering custom programs ONLY.*

There are **ten** functions in your PR system that can be selected for display and control. One of the **eight** function lights is always on, indicating which function is selected. Press **SELECT** to choose a different function. The current value of the selected function is always shown in the display, and the **UP** and **DOWN** keys will change the value of the selected functions.

How do eight lights handle ten functions? As mentioned above, three separate **MODE** functions are accessible while the **MODE** function light is illuminated. They are: **PHASE, DUTY CYCLE,** and **RATE MULTIPLE,** and all three of their values are displayed at the same time - one digit for each - with the brightest indicating the one currently selected. Therefore, the **SELECT** key must be pressed three separate times to cycle through the **MODE** function beginning with **PHASE,** on the far right. (This may sound complex, but it is very easy once you try it!)

As you press the **SELECT** key, some functions may be skipped. This is because the selections interact, making other selections inactive. These inactive selections are automatically skipped as the light advances. The following instructions point out these interactions.

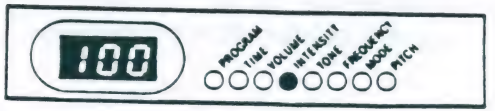
•VOLUME
Range: 0-100



The **VOLUME** function controls the sound level in the headphones, but not the external sound source volume. Use the volume controls on your cassette or CD player to adjust the external **(EXT)** sound source volume.

NOTE: The **VOLUME** of your PR system may change depending on the Tone selection (ex: Binaural may sound loud compared to Single Tone). You may want to select the **TONE** prior to setting the **VOLUME.**

•INTENSITY
Range: 0-100



The **INTENSITY** function controls the brightness of the lights in your stimulation goggles. You may find that the brightness of your surroundings will affect how high or low you'll want to set the **INTENSITY.** Always set **INTENSITY** to a level that is comfortable with your eyes closed.

•TONE

`Single Tone` `White Noise` `Pink Noise` `Binaural Sound`

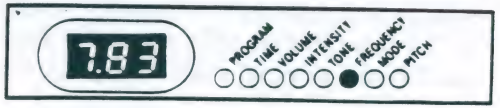
The **TONE** selections are pulsed at a rate controlled by the **FREQUENCY** function.

White Noise is a mixture of many frequencies, with equal sound energy at each frequency. **Pink Noise** is also a mixture of many frequencies, but with equal sound energy in each octave (an octave is an interval that doubles in frequency, such as from 220 Hz to 440 Hz). Since there is a broader range of frequencies in the higher octaves, White Noise contains more high frequency energy. The White and Pink Noise tones provided in the PR system are approximations to true White and Pink Noise. **NOTE:** When White or Pink Noise is selected, the **PITCH** function becomes inactive.

Binaural Signal Sound is created by sending a tone of one frequency in one ear, and a slightly different frequency tone in the other. The result is that the brain processes the two continuous tones in such a way that you hear and sometimes feel the frequency difference, or "beat frequency". For example, if you pulsed an "A" tone of 440 Hz and another tone of 445 Hz, the brain will hear the subtracted difference of 5Hz. This is controlled by the **FREQUENCY** function value.

Binaural Sound can be used effectively without light stimulation. You may want to experiment by using different Binaural frequencies to enhance studying, meditation, etc. You can also connect your PR system to your stereo and listen to Binaural sound without wearing the headphones. (It helps to sit equidistant from the speakers for proper stereo separation.)

•FREQUENCY
Range: 0.05-40.0 Hz

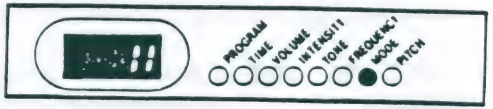


The **FREQUENCY** function controls the rate of light and sound stimulation pulses. See **RATE MULTIPLE** for how it affects **FREQUENCY.**

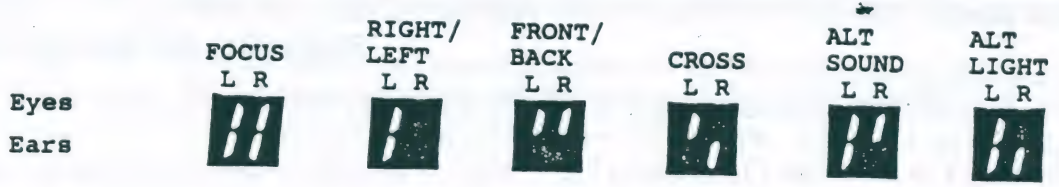
•MODE

When the **MODE** light is on, three different functions are displayed. The brightest of the three display digits is the one currently selected. Going from right to left, these functions are:

- PHASE (also see **BLEND** below)
Range: see chart below



The **PHASE** function controls the phasing of the stimulation to the four stimulation channels (right eye, left eye, right ear, left ear). If two stimulation channels are "on" at once, they are said to be in phase. If one is on while the other is off, they are out of phase, or alternating. The various **PHASE** options provide stimulation phasing represented by the following chart:



For example, in FOCUS, all stimulation channels are on and off at the same time. In Right/Left, the left eye and ear are both on while the right eye and ear are both off, and then they switch, etc. The above chart shows the various phasing options available as they appear on the display.

NOTE: RATE MULTIPLE affects **PHASE** as follows: If a **RATE MULTIPLE** of 2 or 3 is selected, **FOCUS** will no longer be an option because it groups all channels together, leaving no "other" channel for the **RATE MULTIPLE.** If FOCUS was selected prior to choosing a RATE MULTIPLE of 2 or 3, FOCUS will automatically be changed to R/L.

- BLEND FEATURE INSTRUCTIONS:

Another feature accessible thru the **MODE** function (but not one of the ten main functions) is **"BLEND."** The Blend feature provides smooth transitions between mode changes during a program. This feature can ***only*** be activated ***prior*** to the execution of a program, and is enabled at that time.

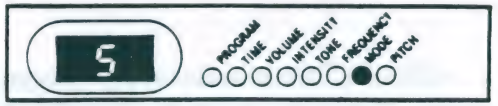
Since the PHASE function is controlled by the design of the program, choosing blend will not over-ride any PHASE stimulation state changes. It will only "soften" the transitions between mode changes in the built-in, or custom program. Therefore, do ***not*** choose Blend while designing and entering the PHASE selections of a custom program. You simply "switch" it on, or off, just prior to starting a program.

Since there are no state changes while using manual mode, other than the stimulation changes you may initiate while cycling through the function keys, Blend is not applicable to manual mode.

To enable the Blend feature prior to running a program, follow these steps:

1) Press the **SELECT** key until the first digit area (the PHASE selection) of the MODE function is illuminated.
2) Press the **UP** key, cycling through the PHASE selections until the letter "b" appears (this is the last available selection).
3) Once "b" is displayed, Blend has been activated and will "Blend" the mode changes of the next program you run.
4) If you want to have Blend activated for all programs, you may select it as a default setting in your Personal Preference Program. (see ADVANCED FEATURES).
5) **To disable the Blend feature**, just select any PHASE value other than "b".

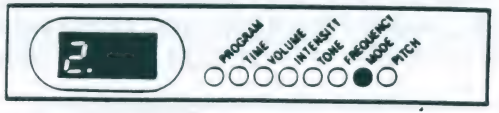
- DUTY CYCLE
Range: 1 thru 9. (10% to 90%)



The **DUTY CYCLE** function controls the pulse width. or percentage of the total cycle time that a stimulation pulse (light or sound) is "on." The default value of 5 represents 50% on, 50% off during the stimulation pulse. A **DUTY CYCLE** display of 4 equals 40% on, 60% off, 3 equals 30% on, and 70% off, and so on. At a duty cycle setting of 7, the light will stay on longer when it flashes than at a setting of 3. Thus a lower setting will produce a sharper pattern than a higher setting. Experiment with various settings to determine which suits you best. When you decide on one, enter into your **Personal Preference Program** so you won't have to change it each time.

NOTE: high frequency pulses tend to run together and create a blurry effect. To improve the effect of beta frequency programs, choose a lower **DUTY CYCLE** value. In general, use a higher **DUTY CYCLE** for lower frequency programs, and a lower **DUTY CYCLE** for higher frequency selections.

- RATE MULTIPLE
Range: G*, 1, 2, 2., 3, 3.
*G (Ganzfeld) available only with white light glasses.



The **RATE MULTIPLE** function allows you to have some stimulation channels operating at a selected "multiple" of the frequency of other channels. The default value of 1 means that all stimulation channels are equal. The value 2 means that the right channel pulses at twice the rate of the left channel. The rate multiple of 2. means that the left channel pulses at twice the rate of the right channel. Similarly, 3 and 3. affect the channels at a rate multiple of three.

As discussed in **PHASE,** the **RATE MULTIPLE** control interacts with the **PHASE** selection. When a **RATE MULTIPLE** other than 1 is selected, the **PHASE** selection of FOCUS becomes inactive, and will automatically change to R/L.

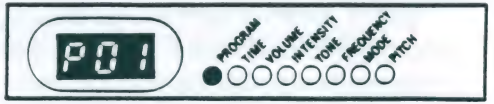
Since **RATE MULTIPLE** interacts with **FREQUENCY**, the maximum stimulation rate allowed is 20 Hz (resulting in 40 Hz in the "other" channel) when selecting 2, and 12.5 Hz when a **RATE MULTIPLE** of 3 is selected.

G indicates the **Ganzfeld** "blank-out"effect and works *only* with the optional white-light goggles. Research has shown this effect to be one of the most reliable techniques for changing states of consciousness. When using the PR-2X in this way, you look at the translucent overlay with eyes open. Although the lights stay on constantly, the sounds will still pulse at any frequency desired. (For more information, see "Gazing Hard Into the Void" in *Megabrain* by Michael Hutchison.)

•PITCH
Range: Three octaves (36 notes)

The pitch of the pulsed tone and binaural sound is controlled by the **PITCH** function. The **PITCH** selection is displayed as its piano keyboard name, with a decimal representing a sharp (half step above the named note), and a note number. The Actual frequency range is from 92.5 Hz (the second F sharp below middle C) to 698.47 Hz (the second F above middle C). When the White or Pink Noise tones are selected, **PITCH** is inactive.

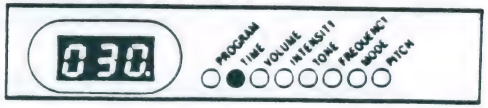
•PROGRAM
Range: E, PPP, APS-APd, P01-P50, U51-U60



There are 50 built-in programs (P01-P50), plus "AUTOPILOT™", which provides unlimited programs. You can create up to 10 more custom programs (U51-U60), which do not exist and will not be displayed until you create them. The **E** program allows to enter custom programs U51 thru U60, or you can use these areas to store "AUTOPILOT™" programs (see **ENTERING CUSTOM PROGRAMS,** and **"AUTOPILOT™" PROGRAMS**, page 19).

The PPP selection allows you to change the default values of all stimulation functions to values that you prefer, and is discussed in **PERSONAL PREFERENCE PROGRAMS,** page 18. The **PROGRAM** function is inactive while a program is running.

•TIME



NOTE: The time function can only be accessed :

1. While changing the duration of a built-in program, as discussed in **CHANGING PROGRAM RUN TIME,** page 19.
2. When viewing how much time remains in a given program after that program has been started.
3. When selecting the duration of various stimulation states in custom programs, as discussed in **ENTERING CUSTOM PROGRAMS,** page 20.

Time cannot be set while in **manual mode** because it runs until it times out after 30 minutes (unless a key is pressed) .

ADVANCED FEATURES

CAUTION: The PERSONAL PREFERENCE PROGRAM (PPP) and custom programs involve storing information in internal memory. Rapid on/off cycles (less than one second) do not allow the system to reset properly, and may cause loss of information. **Use caution not to move the PWR switch from BATT, directly to ON, or vice versa, too quickly.**

•PERSONAL PREFERENCE PROGRAM (PPP)

All functions have built-in default values that are in effect until you change them. Some functions, particularly **VOLUME** and **INTENSITY,** can be distinctly personal and you may prefer some other value than the built-in default value. To avoid the inconvenience of setting your preferred values each time the system is turned on, use the **PERSONAL PREFERENCE PROGRAM** that is provided for this purpose.

To store your own personal preferences, select the **PROGRAM** function and press **DOWN** until PPP (Personal Preference Program) is displayed. Then press **ENTER** - the **PROGRAM** light will blink, indicating that you are now ready to enter information. Don't worry about mistakes, they are easy to correct.

SETTING PERSONAL PREFERENCE PROGRAM (PPP)

Select each function that you want to control, and then set the new default value for that function. For example, if you want the system to turn on with program P03, VOLUME 75, and INTENSITY 90 as default values, press **SELECT, UP,** and **DOWN** until those functions display those values. You can cycle through all of the functions again with **SELECT** to be sure they are set to your preferred values. Then press and hold **ENTER** until the display goes blank. Release **ENTER.** Your personal preferences are now recorded and will come up each time you turn the system on.

Anytime you want different values but don't want to change your PPP, simply override your PPP values with the **SELECT** key before running a program. After using the system for awhile, you may find that your preferences have changed. No problem — just record the new values the same way you did the first time.

•CHANGING PROGRAM RUN TIME

To run a program faster or slower than its normal program run time:

- •Select the program you want to run and press **ENTER.**
- •During the 10 second countdown, press **SELECT.** The **TIME** function will be selected and the normal program time duration will be displayed in minutes.
- •Use the **UP** and **DOWN** keys to select a shorter (minimum = 5 minutes) or longer (maximum = 120 minutes) program run time.
- •When the time duration you want is displayed, press **SELECT,** or **ENTER,** and the system will continue the countdown.

Each stimulation sequence contained in a program will then be proportionately lengthened or shortened to fit the new program run time you have chosen.

•AUTOPILOT™ PROGRAMS (AP™)

This revolutionary innovation was created by Mind Gear™ and is unique to the PR-2X. Each AP program is assigned to a category of brain wave frequencies, and each time you run an AP program the PR-2X system will generate a new and unique program targeted to the frequency range you select! If you enjoyed the program that the AP feature generated, you will then have the option to "capture" this program for future use (up to 10 different ones). This AP feature provides virtually an unlimited number of built-in programs and is available only from Mind Gear™.

The **AP** program options are displayed as follows:

For **Delta** Frequency programs (0.5-4 Hz), the display will show **APd**
For **Theta** Frequency programs (4-7 Hz), the display will show **APH**
For **Alpha** Frequency programs (7-14 Hz), the display will show **APA**
For **Beta** Frequency programs (15-30 Hz), the display will show **APB**
For **Super Beta** Frequency programs (30-40 Hz), the display will show **APS**

NOTE: A final 2 minute ramp back to the starting frequency is generated for any non-Delta AP program. If the AP program is a Delta, the final 2 minutes do not involve frequency changes, therefore Delta AP programs end in Delta.

- STARTING AN "AUTOPILOT™" PROGRAM

Once you have the correct AP program displayed (located **DOWN** from P01), press the **ENTER** key and the system will begin a 10 second countdown while displaying the location for the AP program. All AP programs are preset to run for 30 minutes, but you can change the length of time on these programs just like any other.

VERY IMPORTANT NOTE: The AP program will be stored in the next available location, or location 'U60' if all 10 user programs are already in use. As soon as you hit the ENTER key, any previous program in that location is overwritten IRRETRIEVABLY. During the countdown, the leftmost digit counts down, and the right two digits identify the location where the AP program resides - eg. 'x57' where x counts down and 57 is the first available location.

- SAVING AN "AUTOPILOT™" PROGRAM

After running an **AP** program, the PR-2X system will automatically assign a new program number (U51-U60) and prompt you to decide if you wish to save it as that number. If you wish to save the program for future playback, you ***must*** press the **ENTER** key ***first*** before any other key and the program will then be saved under the number that was flashing. If you ***do not*** wish to save the program, simply press the **SELECT** key (or any key besides ENTER) and the program ***will not*** be saved.

NOTE: We suggest taking the time to write down the program number and type of any "AUTOPILOT™" programs you save. This way you may refer to them for future use.

•CREATING CUSTOM PROGRAMS

After experimenting with the built-in programs and the various stimulation options available, you may want to create your own unique stimulation programs. The PR system provides room for storage of 10 custom programs. You can always overwrite an old program, but you cannot store more than 10.

The custom programs you enter will be labeled under the program numbers, U51 thru U60 (**UP** from P50). These custom program numbers are assigned in ascending numerical sequence, and do not exist nor will they be displayed until you create them.

The program entering sequence is simple, but does not allow editing like a word processor. To change an incorrect entry, you must start over. For this reason, we suggest writing down the sequence of stimulation states that you want the system to perform. Also, record the program number you used to store it. A form is provided for this purpose with your system. **Make copies so you will always have blank originals.**

- TO CREATE CUSTOM PROGRAMS:

- •Select the program function. Press **DOWN** until **E** is displayed.
- •Press and release **ENTER.** The display will shift to the next unused program number, or U60 if all 10 custom program numbers have been used (see **note** below). You cannot skip over unused program numbers.
- •Press and release **ENTER** again. The function light will blink on FREQUENCY, and the normal default frequency will be displayed.

You are now ready to enter your custom program. You can use ^ or v to select a location to store a program. Your custom program is a series of timed stimulation states, so repeat the following steps as required to enter all of the states you want.

Using **SELECT, UP,** and **DOWN,** set all functions to the values you want for each stimulation state. Use the goggles and headphones to be sure of your choices. You can cycle through all functions and verify the displayed information. When everything is right, press and release **ENTER.** The **TIME** LED will light.

Use **UP** and **DOWN** to select the length of time each stimulation state will last. The minimum is 1 second, the maximum will be 20 minutes or less. Minutes are to the left of the decimal point, seconds to the right. When the time you want is displayed, press and release **ENTER** and that stimulation state will be recorded.

The **FREQUENCY** function will be automatically selected again, and the system is ready for you to enter your next stimulation state. Simply repeat the process until all stimulation states have been entered.

When your program is complete, press and HOLD **ENTER** until the display goes blank. Release **ENTER.** Your custom program is now stored and can be run in the same way as any built-in program.

NOTE: If you enter data over an existing custom program number (this includes stored "AUTOPILOT™" programs), the old program will be overwritten. However, you cannot skip over program numbers that have not yet been used, so overwriting an existing program will not be possible until you have used all 10 custom program numbers. This will happen as you create them, or by storing "AUTOPILOT TM" programs. At that point, program number U60 will be displayed, and you may write over any custom program — in any order you wish.

•PROGRAM ENTRY CAPACITY

Each custom program can store 200 bytes of information. If you compose a long program with many stimulation state changes, you may run out of memory. The system will automatically terminate program entry and return the system to the manual state if this happens. The program will be stored intact as far as you entered it. To save memory so the maximum number of stimulation states can be entered, note the following tips:

When a stimulation state is recorded, every function that has changed in value will be recorded. If you experiment with a function by changing its value, and then restore the original value, the system still treats this as a change and uses memory to record it. So experiment with various functions while in manual mode, and then change and record only the functions you want to change while programming.

The maximum time duration of a program is 120 minutes, unless you pause the program. When you near the total time limit, the system will automatically limit time durations to fit the maximum 120 minutes. If you reach the 120 minute time limit before you are finished, the program will automatically terminate, as it will if available memory is exceeded. All entries to that point will be recorded and remain intact.

•ERASING ALL STORED CUSTOM, PPP, AND "AUTOPILOT™" PROGRAMS

To erase all stored programs, including Personal Preference and "AUTOPILOT™" programs, follow these steps:

1) Turn the system on and press the **DOWN** key until the letters **ErA** appear in the display.
2) Press the **ENTER** key - the system will begin flashing all function lights and the **ErA** display.
3) Press the **ENTER** key again if you want to erase **ALL** the custom programs, the Personal Preference Program, and all "AUTOPILOT™" programs that you have stored for later playback.
4) The system will now count down from 6 to 0. After it has reset it will display P01.

TROUBLESHOOTING TIPS

Problem: After running normally for a while, the system starts acting strangely.

Suggestion: The battery may be getting low. See if running the system with the AC adapter fixes the problem. If so, recharge the battery (leave the AC adapter plugged in over night).

Problem: The **FREQUENCY** function only goes up to 12.5 or 20.

Solution: A **RATE MULTIPLE** of 2 or 3 has been selected. Change the setting back to 1 to get higher frequencies.

Problem: The display shows a single hyphen (-), and the switches don't work.

Solution: The battery is low, or the system has timed out. Turn the power off, and then on again. If the hyphen returns, or the system fails to come up properly, recharge the battery.

Problem: The headphones make a loud popping noise and the goggles don't work at all.

Solution: You have the headphones connected to **LIGHT,** and the goggles plugged into **SOUND!**

CAUTION: *The AC adapter that came with your system is selected for proper operation. AC adapters with different voltages or polarity can damage your system.*

MOST FREQUENTLY ASKED QUESTIONS

Q: How long does the battery last?
A: Approximately 5 hours depending on the program and level of stimulation intensity.

Q: Which are the best programs to use?
A: You are ultimately the judge of which programs are best for you.

Q: Should I always set the light intensity to the brightest level?
A: Not necessarily. Set it to a comfortable level that allows your eyes to relax. In fact, some researchers have found that lower light levels work best to facilitate changes in functioning.

Q: Which Tone type is best?
A: Tone is a personal preference. Binaural sounds (beat frequencies) will entrain brain waves effectively when using the system without light stimulation and therefore are even more powerful with lights, however, there will be no difference between some of the different modes when using binaural sounds.

Q: How often and how long should I use the system?
A: As much as you like. Start with frequent use - you may need to use it less later.

Q: How do I use the system for accelerated learning?
A: (1) Try a beta program before studying to clear cobwebs when you don't feel sharp. (2) To focus during study, use Binaural tones with just the headphones, or run the tone through your stereo. (3) Study right after an L/S session of deep relaxation. Research has proven this is a powerful time to learn. (4) Use the system with an external informational tape, such as a language, affirmations, etc. (5) After studying, a deep relaxation session can help information "set."

Q: What color LED's are best for the goggles?
A: All work well, however, photosensitive persons may prefer green for its soothing effect, or white with color diffusers.

THE NEXT STEP

We at Mind Gear Inc. want to help you learn more about this exciting field and spread the word to your friends and associates. We have several ways to do this:

1.) If you refer a new customer to us, we will give you a $50 gift certificate that you can use toward any of our products.

2.) If you wish to market our products, please contact us for dealer pricing and details. NOTE: We are especially interested in distributors in countries outside the U.S..

3.) If you have Internet access, visit our Website for the latest on new products, research, and ways to use this techonology. The address is: http://www.netcreations.com/mindgear/

4.) If you wish to participate in the email discussion group Mind-L, please send a message to: <listproc@gate.net> with "subscribe mind-l (your name)" in the body of the message. The address for posting messages to the list is: mind-l@gate.net. See you on the list.

5.) Request our catalog of products that enhance the benefits of your PR-2X. The catalog features psychoactive tapes to use during Light & Sound sessions, the L/S TurboCharger that adds another dimension to your system with TENS and CES, a low-cost EEG that connects to your PC, books that will increase your understanding of mind machine technology, and much more!

WARRANTY PROVISIONS

WARRANTY DURATION

Mind Gear systems are warranted to the original consumer purchaser for a period of one year from the original purchase date.

WARRANTY COVERAGE

The systems are warranted against defects in materials or workmanship. This warranty is void if the product has been damaged by accident, unreasonable use, neglect, improper service, or other causes not arising from defects in materials or workmanship.

WARRANTY RETURNS

During the warranty period, a defective system will be repaired or replaced (at the option of Mind Gear) when the product is returned postpaid to:

MIND GEAR
9424 MERCANTILE DR.
MENTOR, OHIO 44060
1.800.525.MIND (6463) or 1.216.354.5159

The repaired or replaced unit will be under warranty for three months or the remainder of the original warranty period, whichever is longer. Other than shipping, there is no charge for such repair or replacement. We strongly recommend that you insure the product for its value prior to shipping.

If you break the frame of your goggles without damaging the electrical parts, we will repair them for $10 plus shipping. Out-of-warranty systems that have not been physically damaged will be repaired for $35 plus shipping.

NOTE: The Warranty Registration card must be completed and returned before any warranty request will be honored.

OPERATIONS SUMMARY

MAKE CONNECTIONS, TURN ON SYSTEM

- •Headphones to the **SOUND** jack., Stimulation goggles to the **LIGHT** jack.
- •AC adapter to the **PWR** jack and to a 120 volt wall outlet (if you want to conserve or recharge the battery).
- •External cassette or CD player to the **EXT** jack via the stereo cord (this connection is optional).
- •Power switch to BATT (or ON if using AC adapter).

VIEW OR CHANGE FUNCTION VALUE

- •Press **SELECT** repeatedly until the desired function is selected.
- •Press (hold) **UP, DOWN** until the desired value is displayed.

RUNNING A PROGRAM

- •Select the desired program with **SELECT, UP, DOWN.**
- •Get comfortable. Put the headphones and goggles on.
- •Press **ENTER. GENTLY CLOSE YOUR EYES.**
- •At End, press and hold **ENTER** until the display goes blank. Release

PAUSING A PROGRAM

- •Press and release **ENTER.** To restart, Press and release **ENTER.**

STOPPING A PROGRAM

- •Press and hold **ENTER** until the display goes blank. Release.

CHANGING PROGRAM RUN TIME

- •Select the desired program, press and release **ENTER** to start countdown. During countdown, press **SELECT.** The normal program run time will be displayed.
- •Use **UP, DOWN,** to select the desired run time, press and release **SELECT,** or **ENTER.**

ENTERING A PERSONAL PREFERENCE PROGRAM

- •Select the **PROGRAM** function, **DOWN** to **PPP,** press and release **ENTER.**
- •Set all functions to desired values.
- •Press and hold **ENTER** until the display goes blank. Release.

ENTERING A CUSTOM PROGRAM

- •Select the **PROGRAM** function, **DOWN** to E, press **ENTER.**
- •Use **UP, DOWN** to select the program to be entered, press **ENTER.**
- •Set stimulation functions. Press and release **ENTER.**
- •Select time duration. Press and release **ENTER,** repeat above step.
- •When done, press and hold **ENTER** until the display goes blank. Release **ENTER.** Your program is stored.